

## CLAIMS

### 1. A tray component supply apparatus comprising:

a tray stocker provided inside an apparatus main body to be movable in a vertical direction for storing plural component supply trays arranged in the vertical direction;

a tray stocker drive device for moving the tray stocker in the vertical direction to position the tray stocker to a predetermined position; and

a tray drawing mechanism for drawing a component supply tray stored in the tray stocker to a component delivery position;

wherein the apparatus is characterized by further comprising:

a main body side replenishment tray holding section provided at a part over or under the tray stocker of the apparatus main body for externally receiving and holding a replenishment tray which is a component supply tray loaded with components; and

a tray stocker side replenishment tray holding section provided at an upper or lower part of the tray stocker for slidably holding the replenishment tray; and

wherein the replenishment tray held by the main body side replenishment tray holding section is transferred to the tray stocker side replenishment tray holding section with the tray stocker side replenishment tray holding section positioned to a position close to the main body side replenishment tray holding section.

### 2. A tray component supply apparatus comprising:

a tray stocker provided inside an apparatus main body to be movable in a vertical direction for storing plural component supply trays arranged in the vertical direction;

a tray stocker drive device for moving the tray stocker in the vertical direction to position the tray stocker to a predetermined position; and

a tray drawing mechanism for drawing a component supply tray stored in the tray stocker to a component delivery position;

wherein the apparatus is characterized by further comprising:

a main body side replenishment tray holding section provided at a part over or under the tray stocker of the apparatus main body for externally receiving and holding a replenishment tray which is a component supply tray loaded with components;

a tray stocker side replenishment tray holding section provided at an upper or lower part of the tray stocker for slidably holding the replenishment tray; and

tray transfer means for transferring the replenishment tray held by the main body side replenishment tray holding section to the tray stocker side replenishment tray holding section with the tray stocker side replenishment tray holding section positioned to a position close to the main body side replenishment tray holding section.

### 3. A tray component supply apparatus comprising:

a tray stocker provided inside an apparatus main body to be movable in a vertical direction for storing plural component supply trays arranged in the vertical direction;

a tray stocker drive device for moving the tray stocker in the vertical direction to position the tray stocker to a predetermined position; and

a tray drawing mechanism for drawing a component supply tray stored in the tray stocker to a component delivery position;

wherein the apparatus is characterized by further comprising:

a main body side replenishment tray holding section provided at a part over the tray stocker of the apparatus main body for externally receiving and holding a replenishment tray which is a component supply tray loaded with components; and

a tray stocker side replenishment tray holding section provided at an upper surface of a top plate of the tray stocker for slidably holding the replenishment tray; and

tray transfer means for transferring the replenishment tray held by the main body side replenishment tray holding section to the tray stocker side replenishment tray holding section with the tray stocker side replenishment tray holding section positioned to a position close to the main body side replenishment tray holding section.

4. The tray component supply apparatus as set forth in Claim 3, characterized in that the main body side replenishment tray holding section comprises a frame member formed to be rectangular and first replenishment tray holding members which are protruded from a pair of facing side plates of the frame member to be movable inward in the horizontal direction for holding the replenishment tray.

5. The tray component supply apparatus as set forth in Claim 4, characterized in that the frame member is provided at an upper part of the apparatus main body to be drawable in the horizontal direction so that the replenishment tray is replenished with the frame member drawn out.

6. The tray component supply apparatus as set forth in Claim 4, characterized in that the frame member is bodily provided at the upper part of the apparatus main body and that a top plate of the apparatus main body is constructed to be opened and closed so that the replenishment tray is

replenished with the top plate opened.

7. A tray component supply apparatus comprising:

a tray stocker provided inside an apparatus main body to be movable in a vertical direction for storing plural component supply trays arranged in the vertical direction;

a tray stocker drive device for moving the tray stocker in the vertical direction to position the tray stocker to a predetermined position; and

a tray drawing mechanism for drawing a component supply tray stored in the tray stocker to a component delivery position;

wherein the apparatus is characterized by further comprising:

first replenishment tray holding members provided at a part over the tray stocker of the apparatus main body and each movable between a holding position for externally receiving and holding a replenishment tray which is a component supply tray loaded with components and a holding release position for releasing the holding;

first replenishment tray holding member moving means for moving the first replenished holding members between the holding position and the holding release position; and

second replenishment tray holding members provided at an upper surface of a top plate of the tray stocker for slidably holding the replenishment tray; and

wherein the first replenishment tray holding members and the second replenishment tray holding members are provided at respective positions not interfering with each other for making it possible to simultaneously hold the same replenishment tray.

8. The tray component supply apparatus as set forth in Claim 7,

characterized in that the first replenishment tray holding members are protruded to be movable inward from a pair of facing side plates of a frame member which is provided at an upper portion of the apparatus main body to be drawably horizontally so that the replenishment tray is mounted on the first replenishment tray holding members with the frame member drawn out.

9. The tray component supply apparatus as set forth in Claim 8, characterized in that each of the second replenishment tray holding members includes plural members which are spaced on a straight line parallel to the direction in which the component supply tray is drawn out.

10. A tray component supply apparatus comprising:

a tray stocker provided inside an apparatus main body to be movable in a vertical direction for storing plural component supply trays arranged in the vertical direction;

a tray stocker drive device for moving the tray stocker in the vertical direction to position the tray stocker to a predetermined position; and

a tray drawing mechanism for drawing a component supply tray stored in the tray stocker to a component delivery position;

wherein the apparatus is characterized by further comprising:

a main body side replenishment tray holding section provided at a part under the tray stocker of the apparatus main body for externally receiving and holding a replenishment tray which is a component supply tray loaded with components; and

a tray stocker side replenishment tray holding section provided at a lower part of the tray stocker for slidably holding the replenishment tray; and

wherein the replenishment tray held by the main body side replenishment tray holding section is transferred to the tray stocker side

replenishment tray holding section with the tray stocker side replenishment tray holding section positioned to a position close to the main body side replenishment tray holding section.

11. The tray component supply apparatus as set forth in Claim 10, characterized in that the tray stocker side replenishment tray holding section includes replenishment tray holding members movable between a holding position for slidably holding the replenishment tray and a holding release position for releasing the holding and that the tray component supply apparatus further comprises replenishment tray holding member moving means for moving the replenishment tray holding members between the holding position and the holding release position to move the replenishment tray held by the main body side replenishment tray holding section to the replenishment tray holding members.

12. The tray component supply apparatus as set forth in Claim 10 or 11, characterized in that the main body side replenishment tray holding section is constituted to be drawable in the horizontal direction so that the replenishment tray is replenished with the main body side replenishment tray holding section drawn out.

13. The tray component supply apparatus as set forth in any one of Claims 1 through 12, characterized in that the replenishment tray held by the tray stocker side replenishment tray holding section is stored at a predetermined location in the tray stocker after drawn out once to the component delivery position.

14. A tray component supply apparatus comprising:

a tray stocker provided inside an apparatus main body to be movable in a vertical direction for storing plural component supply trays arranged in

the vertical direction;

a tray stocker drive device for moving the tray stocker in the vertical direction to position the tray stocker to a predetermined position; and

a tray drawing mechanism for drawing a component supply tray stored in the tray stocker to a component delivery position;

wherein the apparatus is characterized by further comprising:

a main body side empty tray holding section provided at a part under or over the tray stocker of the apparatus main body and being capable of holding an empty tray which is a component supply tray emptied of components and of discharging the empty tray out; and

a tray stocker side empty tray holding section provided at a lower part or upper part of the tray stocker for slidably holding the empty tray; and

wherein the empty tray held by the tray stocker side empty tray holding section is transferred to the main body side empty tray holding section with the tray stocker side empty tray holding section positioned to a position close to the main body side empty tray holding section.

15. A tray component supply apparatus comprising:

a tray stocker provided inside an apparatus main body to be movable in a vertical direction for storing plural component supply trays arranged in the vertical direction;

a tray stocker drive device for moving the tray stocker in the vertical direction to position the tray stocker to a predetermined position; and

a tray drawing mechanism for drawing a component supply tray stored in the tray stocker to a component delivery position;

wherein the apparatus is characterized by further comprising:

a tray discharge section provided at a part under or over the tray

stocker of the apparatus main body for holding an empty tray which is a component supply tray emptied of components and for discharging the empty tray out;

empty tray holding members provided on a lower surface of a bottom plate or an upper surface of a top plate of the tray stocker and movable between a holding position for slidably holding the empty tray and a holding release position for releasing the holding; and

empty tray holding member moving means for moving the empty tray holding members between the holding position and the holding release position to move the empty tray supported by the empty tray holding members to the tray discharge section.

16. A tray component supply apparatus comprising:

a tray stocker provided inside an apparatus main body to be movable in a vertical direction for storing plural component supply trays arranged in the vertical direction;

a tray stocker drive device for moving the tray stocker in the vertical direction to position the tray stocker to a predetermined position; and

a tray drawing mechanism for drawing a component supply tray stored in the tray stocker to a component delivery position;

wherein the apparatus is characterized by further comprising:

a tray discharge section provided at a part under the tray stocker of the apparatus main body for holding an empty tray which is a component supply tray emptied of components and for discharging the empty tray out;

empty tray holding members provided on a lower surface of a bottom plate of the tray stocker and movable between a holding position for slidably holding the empty tray and a holding release position for releasing the



holding; and

empty tray holding member moving means for moving the empty tray holding members between the holding position and the holding release position to move the empty tray supported by the empty tray holding members to the tray discharge section.

17. The tray component supply apparatus as set forth in Claim 16, characterized in that the empty tray holding member moving means is provided beside the tray discharge section and moves the empty tray holding members to the holding release position after the tray stocker is moved down to make the empty tray holding members come close to the tray discharge section.

18. The tray component supply apparatus as set forth in Claim 16 or 17, characterized in that engaging portions of the empty tray holding members and engaging portions of the empty tray holding member moving means are engageable and disengageable only in the vertical direction.

19. A tray component supply apparatus comprising:

a tray stocker provided inside an apparatus main body to be movable in a vertical direction for storing plural component supply trays arranged in the vertical direction;

a tray stocker drive device for moving the tray stocker in the vertical direction to position the tray stocker to a predetermined position; and

a tray drawing mechanism for drawing a component supply tray stored in the tray stocker to a component delivery position;

wherein the apparatus is characterized by further comprising:

a tray stocker side empty tray holding section provided at an upper part of the tray stocker for slidably holding an empty tray;

empty tray holding members provided at a part over the tray stocker of the apparatus main body and movable between a holding position for holding the empty tray which is a component supply tray emptied of components and a holding release position for releasing the holding; and

empty tray holding member moving means for moving the empty tray holding members between the holding position and the holding release position to move the empty tray held by the tray stocker side empty tray holding section to the empty tray holding members.

20. The tray component supply apparatus as set forth in Claim 19, characterized in that the empty tray holding member moving means is provided at an upper part of the tray stocker, and that the empty tray holding member moving means moves the empty tray holding members to the holding release position when the tray stocker is moved upward to make the tray stocker side empty tray holding section come close to the empty tray holding members and moves the empty tray holding members to the holding position after the empty tray is moved to a transfer position.

21. The tray component supply apparatus as set forth in Claim 19 or 20, characterized in that a top plate of the apparatus main body is constructed to be opened and closed so that the empty tray held by the empty tray holding members is taken out with the top plate opened.

22. A tray component supply apparatus comprising:

a tray stocker provided inside an apparatus main body to be movable in a vertical direction for storing plural component supply trays arranged in the vertical direction;

a tray stocker drive device for moving the tray stocker in the vertical direction to position the tray stocker to a predetermined position; and

a tray drawing mechanism for drawing a component supply tray stored in the tray stocker to a component delivery position;

wherein the apparatus is characterized in that:

a main body side replenishment tray holding section for externally receiving and holding a replenishment tray which is a component supply tray loaded with components is provided at the uppermost end position on a moving locus of the tray stocker, while a tray discharge section for holding an empty tray which is a component supply tray emptied of components and for discharging the empty tray out is provided at the lowermost end position of the moving locus; and

the tray stocker is provided at its upper end part with a tray stocker side replenishment tray holding section for receiving and holding the replenishment tray transferred from the main body side replenishment tray holding section and at its lower end part with empty tray holding members for holding the empty tray to be discharged to the tray discharge section.

23. A tray component supply apparatus having:

a tray stocker provided inside an apparatus main body to be movable in a vertical direction for storing plural component supply trays arranged in the vertical direction;

a tray stocker drive device for moving the tray stocker in the vertical direction to position the tray stocker to a predetermined position; and

a tray drawing mechanism for drawing a component supply tray stored in the tray stocker to a component delivery position;

wherein the apparatus is characterized in that:

a main body side replenishment tray holding section for externally receiving and holding a replenishment tray which is a component supply tray

loaded with components is provided at the lowermost end position on a moving locus of the tray stocker, while a main body side empty tray holding section capable of holding an empty tray which is a component supply tray emptied of components and of discharging the empty tray out is provided at the uppermost end position of the moving locus; and

the tray stocker is provided at its lower end part with a tray stocker side replenishment tray holding section for receiving and holding the replenishment tray transferred from the main body side replenishment tray holding section and at its upper end part with empty tray holding members for holding the empty tray to be moved to the main body side empty tray holding section.